

## Statistic analysis of the neurotic symptom dynamics during intensive psychotherapy in a day hospital setting

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### Summary

**Aim:** Analysis of the global neurotic symptom dynamics during intensive integrative psychotherapy in a day-hospital setting, and its relation to the treatment outcome.

**Method:** 4345 symptom check-lists SCL"0", filled in by 319 patients treated in the years 1990–1998 were analysed. The studied group consisted of 235 women and 84 men suffering from somatization disorders, generalized anxiety disorder and dissociative disorders.

**Results:** In groups of patients with different therapy outcome, different types of sequential changes of global symptom level ("GSL") were observed. Some phenomena like for example unchanged symptom level ("plateau") lasting for a few weeks, occurred with different frequency – related to the final therapy outcome. Decrease of the global symptom level below 200 points in women and 165 points in men often preceded global symptom exacerbation and occurred even in therapies with non-beneficial final results.

**Conclusion:** Some aspects of the global neurotic symptom dynamics may be treated as additional markers of beneficial or non-beneficial therapy processes. Sequences of symptom decreases, as well as sequences of short increases were connected to better final results. Weekly measurements of the symptom level (with the use of checklists) may be useful for monitoring the psychotherapy process, but the decrease of the GSL to the values typical for the healthy population does not permit one to consider a patient as a "cured" one. Even decrease of GSL below 100 (women) / 82 (men) points was not always connected to its further stability.

**Key words:** symptom dynamics, neurotic disorders, psychotherapy research

### Introduction

In the last decade a lot of attention of psychotherapy researchers was given to the change of the global symptom intensity and its course during treatment, especially that regarding relation between symptom fluctuation and the final therapy outcome – in terms of possibility of prediction of the therapy outcome. A wider review of literature was presented in a separate paper [1].

The purpose of the study was an analysis of dynamics of the global symptom level during psychotherapy of neurotic patients, and research on the relation between the observed dynamics and therapy outcome.

## Material and methods

The material studied was 4345 symptom checklists, filled in by 319 patients treated in a day hospital of the Wojewódzki Ośrodek Leczenia Nerwic in Cracow, in the years 1990–1998. In the group studied there were 235 women and 84 men: 103 patients with a diagnosis of somatoform disorders, mostly somatization disorders (F45.0), 82 with a diagnosis of generalized anxiety disorders (F41.1), 63 patients with diagnosis of dissociative motor disorders (F44.4) and dissociative anaesthesia and sensory loss (F44.6) and 71 patients with diagnoses combining the elements of the disorders listed above. In all the patients, the value of the symptom checklist SCL "0", filled in during preliminary ambulatory examinations, exceeded 165 points for men and 200 points for women. The documentation of the global symptom intensity in a minimum of 9 weeks was considered as complete. The patient's age was 18–56 years (mean = 35.8, median = 36, SD = 8.16).

Data from symptom checklists "0" (SCL "0") filled in by patients before treatment (during consultation), on the first day of treatment, on every Monday of the week and on the last day of treatment were analysed. Comparison of global symptom level from the first and the last day of treatment reflected on the therapy outcome, while data from weekly measurements indicated changes of global symptom intensity in the course of treatment.

Global symptom change was categorized (see also [2]) as "significant symptom improvement", "lack of symptom improvement", and "symptom deterioration". Obtaining up to 100 points for women and 82 for men, was assumed as "symptom cure", due to criteria twice more rigorous than clinical ones, resulting from the "cut-off point" [3, 4]. Patients were divided into three groups according to the final outcome: A – significant improvement with symptom cure (129 patients – 40.4%), B – significant improvement without cure (100 patients – 31.3%) and C – lack of symptom improvement (87 patients – 27.3%). Two patients with a low level of global symptom intensity (at pre-therapy period) where a statistically insignificant decrease would lead to obtaining "symptom cure", as well as one case of significant deterioration were excluded from further analyses.

In a pilot study the dynamics of global symptom intensity was assessed for each patient and their comparison was conducted. On that basis categories of global symptom level ("GSL") changes were proposed as shown in Table 1.

The frequency of each type of GSL change defined in Table 1 was calculated for each patient, resulting in a parameter independent from the duration of treatment. In the next step distributions of GSL changes in the three groups (A, B, C) calculated for each patient underwent the comparative analysis. Comparison of the three distributions was conducted with the use of Kruskal–Wallis test, in the case of significant main effect, pairs of distributions were compared with the median test. Rates of patients with particular characteristics of symptom dynamics were compared with the two-tailed fraction test (results are shown in Table 3).

## Results

Already in the pilot study it appeared that only in two cases (two patients) alterations of the courses were monotonic, the rest differed not only among groups of

different effects of treatment but also within those groups. Complexity of the global symptom level dynamics is illustrated by dissemination of particular categories of the GSL change shown in Table 2 and 3.

Table 1

### Categories of change observed in the course of therapy

Category	Definition of changes of global symptom level ("GSL")
Increase	Increase by more than 5% of the previous value of GSL
Decrease	Decrease by more than 5% of the previous GSL value
Sequence increase - decrease	Increase of GSL followed by decrease
Sequence decrease - increase	Decrease of GSL followed by increase
Plateau	Change by less than 5% of the previous GSL value
"High" plateau	As above, GSL above 200/165 pts
2 (3, 4) succeeding increases	Sequence of 2 (3,4) increases
2 (3, 4) succeeding decreases	Sequence of 2 (3,4) decreases
2 (3, 4) succeeding plateau	Sequence of 2 (3, 4) plateau
Decrease of GSL to the value typical for the healthy population and following increase to the value typical for neurotics	Decrease of GSL below 200 pts. (women), or 165 pts. (men), then increase above 200/165 pts.
Decrease of GSL to half of the value typical for the healthy population and following increase to the value typical for neurotics	Decrease of GSL below 100 pts. (women), or 82 pts. (men), then increase above 200/165 pts.

Table 2

### Dissemination of GSL changes in groups A, B, C. Medians (in brackets values of the lower and upper quartile)

Frequency:	Group A (n=129)	Group B (n=100)	Group C (n=87)	Kruskal-Wallis Test	Median tests
Plateaus (all)	①② 0.11 (0.06–0.18)	① 0.21 (0.1–0.3)	② 0.22 (0.1–0.33)	p<0.0001	①<0.0001 ②<0.0005
"High" plateau (GSL above 200/165 pts.)	①② 0.07 (0–0.11)	① 0.2 (0.09–0.3)	② 0.2 (0.09–0.33)	p<0.0001	①<0.0001 ②<0.0005
2 succeeding "high" plateaus	①② 0 (0–0)	① 0 (0–0.08)	② 0 (0–0.06)	p<0.0001	①②<0.0001
Increases (all)	② 0.27 (0.18–0.33)	③ 0.23 (0.18–0.33)	②③ 0.33 (0.25–0.4)	p<0.0001	②<0.0005 ③<0.0001
Decreases (all)	①② 0.6 (0.55–0.67)	②③ 0.52 (0.46–0.62)	①③ 0.44 (0.33–0.5)	p<0.0001	①<0.0001 ②③<0.0005
Sequences increase – decrease	0.18 (0.12–0.25)	0.16 (0.09–0.21)	0.18 (0.10–0.25)	ns	ns
Sequences decrease – increase	0.17 (0.09–0.22)	0.15 (0.10–0.20)	0.17 (0.10–0.24)	ns	ns
Decrease of GSL below 200/165 pts obtained during therapy	①② 0.25 (0.15–0.39)	①③ 0.06 (0–0.13)	②③ 0 (0–0.08)	p<0.0001	①②<0.0001 ③<0.005
Decrease of GSL below 100/82 pts. obtained during therapy	①② 0.1 (0–0.23)	① 0 (0–0)	② 0 (0–0)	p<0.0001	①②<0.0001

Table 3

## Dissemination of GSL change in groups A, B, C

Rate of patients with a particular category of GSL dynamics	Group A (n=129)	Group B (n=100)	Group C (n=87)	Two fractions test
2 succeeding "high" plateaus	13 (10%①②)	44 (44%①)	33 (38%②)	①②<0.0001
3 succeeding "high" plateaus	4 (3%①)	4 (4%②)	12 (14%①②)	①<0.005 ②<0.05
4 succeeding "high" plateaus	1 (0.5%①)	3 (3%)	4 (5%①)	①<0.05
5 succeeding "high" plateaus	0①	1 (1%)	3 (3%①)	①<0.05
6 succeeding "high" plateaus	0	0	1 (1%)	ns
2 succeeding increases	48 (37%①)	35 (35%②)	48 (55%①②)	①②<0.01
3 succeeding increases	7 (5%①)	5 (5%)	11 (13%①)	①<0.05
Decrease of GSL to the value typical for the healthy population followed by increase above 200/165 pts	48 (37%①②)	22 (22%①)	20 (23%②)	①②<0.05
one time	20 (16%)	13 (13%)	11 (13%)	ns
two times	10 (8%①)	2 (2%①)	2 (2%)	①<0.05
three times	7 (5%)	4 (4%)	2 (2%)	ns
four times	3 (2%)	0	0	ns
five times	5 (4%)	1 (1%)	1 (1%)	ns
more than five times	3 (2%)	2 (2%)	4 (5%)	Ns
Decrease of GSL to half of the value typical for the healthy population and following an increase above 200/165 pts	6 (5%)	1 (1%)	1 (1%)	Ns

## Discussion

Lack of change of GSL, especially lack of several following "high" plateaus (i.e. stagnation) was the scarcest in group A (differences statistically significant; see Tables 2 and 3). For patients from group C, the increase in GSL was significantly more frequent than in patients from groups A and B (see Table 2). An increase in symptoms was noted at least once in almost all the patients in each of the groups (non-significant statistically), however sequences of GSL peaks lasting for a few weeks in the whole course of therapy (most frequent in group C, Table 3) were present at least once in 30-50% of the patients in each group. A drop in the GSL occurred the most frequently in patients from the group obtaining the best final results (A), less frequently in the group B and were the least frequent in C (decreases were generally frequent). In the group of patients who obtained significant improvement with symptom cure change by less than 5% between two succeeding measurements (plateau) was much more seldom than in the remaining groups. A similar but less strongly marked trait was found in the group B. In the group C the least frequent category of GSL change was decrease (the most frequent in A, less in B).

The results obtained suggest some possibility of considering combinations of GSL plateaus and increases with concurrent lack of numerous decreases (a combination

that was seldom in group A, more frequent in B and very often in C) as a kind of prognostic trait – unfavourable for the outcome. They do not however, provide the possibility of indicating a typical, successful or unsuccessful, course of treatment. The observations conducted do not support also the monotonic character of changes that is often mentioned in literature (more [1]).

Frequency of sequences of the GSL increase followed by a decrease of symptoms as well as sequences of decrease and a following increase of GSL, were similar in patients in all three groups (A, B, C, no significant differences, see Table 2).

A decrease of GSL below 200/165 points obtained in the course of treatment was very frequent in therapies of patients from group A, and lasted for about of 25% of the duration of their treatment, much less frequent (however also obtained) in the remaining groups (B and C, Table 2 and 3). It seems to be worth underlining that in the case of 90 from the 319 patients, from all the three groups, a repeated significant increase of GSL under 200/165 points (table 3) was found even several times during treatment. A similar, however much more infrequent phenomenon (8 of 316 cases) of GSL below 100/82 pts. (values of 99, 89, 85, 79, 77, 61, 60 and even 24 points) happened in all groups, even in one therapy finished with “lack of symptom change” (Table 3).

As the results show, only frequent measurement of GSL and assessment of its individual change may contribute to therapy process monitoring. Such a manner of therapy observation may be used for defining the moment of the best improvement or defining which phenomena observed in the course of treatment (“intermediated results” as defined by Kiessler) might serve as a kind of “prediction” traits of the final outcome [1, 5, 6, 7].

In this paper, aimed at searching for connections between neurotic disorder symptom dynamics and treatment outcome, similar methods to those known for example from K.Howard group’s studies [i.e. 8, 9, 10] based on distinctive characteristics of change during therapy of individual patients [e.g. 11] were used. This particular method was applied to avoid possible misinterpretation resulting from summing curves and data aggregation [8, 12, 13, 14] that appear in the mean change analysis calculated for whole groups of subjects.

However predicting the final outcome on basis of similarity of succeeding questionnaires (e.g. GSL) to analogous questionnaires from therapies whose results are already known, is theoretically possible, however assuming that for example five following weekly measurements [5, 6] may contribute to the forecasting of the treatment outcome as “already determined”, does not seem justifiable. Besides, as is to be found in literature, the proposed methods fail to predict treatment outcome in about 25% of the patients [e.g. 15]. It seems obvious that even if the possibility of such a prediction strengthens along with the length of the observed therapy, final results remain undetermined to the last day of treatment. Such an assumption is also supported by the author’s own analyses which showed that only in the second part of the psychotherapy, more statistically significant differences in symptom dynamics in groups of different treatment outcome both in distinctive symptoms [16] and – as known from the pilot research – in global symptom level (GSL), were observed. A similar

conclusion derives also from the described observation of the course of GSL changes during therapy. Obtaining a decrease of GSL down to values typical for people not suffering from neurotic disorders (below 200/165 points) was not necessarily connected to obtaining symptom cure as the final outcome – in many cases global symptoms intensity increased once again. What's more, even obtaining a GSL decrease below 100/82 points, not always resulted in maintaining such a low level of symptoms or completing treatment with symptom cure. It raises a question if any low level of neurotic complaints (symptoms) may serve as basis to recognise the treatment as successful and to make a decision to end treatment, when the criterion of "case identification" in epidemiology (200/165 points) seems to be not entirely reliable and even a twice as much strict criterion (100/82 points) does not guarantee maintaining a satisfying therapy outcome. It is impossible to conclude that an analogous phenomenon is characteristic for the whole population of patients suffering from neurotic disorders – symptom dynamics may depend on many variables like treatment conditions, kind of therapy, theoretical treatment assumptions, intensity and information and expectations, the proclaimed duration of treatment etc.

Results of analyses of symptom change dynamics may also depend on the frequency of measurement. Too long intervals between surveys make observation of symptom fluctuation impossible, on the other hand too frequent measurements may lead to unreliability of results caused by the "training effect" or tiredness and dejection of a too excessive task performance etc. resulting in mechanical answering [17]. The recommended solution, enabling omitting such mistakes, is to apply symptom checklists once a week. Assumption of lack of the "training effect" in such a case is supported by excessive variety of GSL fluctuations that was observed also in the present research.

The possibility of prediction how GSL changes influence the final treatment outcome is limited also by a specific character of symptom checklists composition – by necessity omitting many symptoms. Different results of different symptom checklists filled at the same time by the same patient may be significantly distinct because of different sets of variables included [18, 19]. Moreover, information based only on fluctuation of GSL may blur some aspects of particular symptom dynamics because of opposite direction or different occurrence of their changes in the course of time. Perhaps this is why – despite initial assumptions – no connection was found between sequences of "increase followed by decrease" and "decrease followed by increase" of GSL and outcome.

The way the checklist was applied (due to the instruction, patients report a change in the past seven days) disables identification of symptoms that lasted only for several days, hours or just temporary fluctuations – too short to influence the global assessment of the whole week. Patients who finished therapy as "symptom cured" (group A) reported a high and stable GSL for several weeks more seldom than patients from other groups. GSL courses were connected both to more frequent decreases of GSL than in the other groups and – even slightly more frequent than in the case of patients who obtained "significant improvement without symptom cure" – increases of global symptom intensity. That might be caused for example by raising problems during

group sessions analogous to those of a given patient, resignation from avoiding exploration of potentially “dangerous” areas of self-experience, obtaining insight, attempts to change everyday functioning (working through) etc. [11]. Symptoms withdrawal in those patients may indicate that conditions of their treatment were propitious (interventions adequate to the kind of disorder and applied in the right time, promoting insight and working through, change of cognitive schemata and dysfunctional behaviour). It cannot be excluded that a progressive decreasing of GSL without any increases (described among others by M. Lambert e.g. [5]), evidence only patients’ satisfaction with being in a “therapeutic” environment that somehow gratifies neurotic needs.

Perhaps some of the observed phenomena were connected to a specific manner of the therapists’ functioning. One of the principles of applied eclectic, psychodynamically oriented understanding of psychopathology and psychotherapy was stimulating the patient towards obtaining insight into difficult, tension-provoking, unconscious experiences. Approaching such areas usually increases symptom intensity while obtaining insight and working through leads to their removal. It cannot be excluded that providing patients with the feedback regarding the level of their symptom intensity (patients had graphs of every-week GSL change to their disposal), influenced the direction of change, e.g. observation that some increases in other patients were temporary, mobilized some patients to confront with a symptom provoking context (situations and behaviours).

In group B – patients who obtained improvement without symptom cure, the least number of all GSL increases and increases in 2 and 3-week sequences was observed. While considering different aspects of GSL dynamics, this group seems to be “in between” groups A and C – in respect of number of GSL plateaus and decreases, as well with regard to the kind of changes at the end of therapy (in this aspect group B seems to be more similar to C). It is interesting that those patients entered the treatment with higher GSL. This may be a confirmation of a belief that the higher intensity of symptoms the more difficult it is to obtain therapeutic success [e.g. 20]. It has no direct connection to the degree of improvement expressed as a mathematical remainder between initial and final value of GSL. Obtaining “bigger improvement” in patients beginning treatment with higher symptom intensity is said to be easier because “there is what is to be cured” [21]. It results in an assumption (and even trials of predicting outcome on the basis of initial severity of symptoms reported by patients in symptom checklists SCL-90R or OQ-45) that patients with a high level of symptom intensity obtain better treatment effects [8, 22-28]. Results of the presented analysis do not confirm that assumption.

In the group of “lack of changes” (C) the occurrence of several succeeding “high plateaus” (unchanged high level of GSL) was significantly more frequent than in other groups which indicates probably some kind of impasse in the course of treatment. Despite not large differences in the GSL value measured at pre-treatment level and on the last day of treatment, in the course of such therapies numerous, small increases and sometimes decreases of GSL, even down to the level typical for the healthy population were observed.

On the ground of the results obtained in the presented work it is impossible to agree with M. Lambert who claimed [e.g. 5, 6] that only decreases of GSL (observed during treatment) are characteristic for successful therapies. It seems that it is more proper to assent a less frequent occurrence of GSL plateaus as a predictor of obtaining good outcome. Probably periods of lack of GSL fluctuation (plateaus) may also serve as a predictor of unfavourable treatment results, especially when considering high levels of GSL. The author agrees with the opinion that occurrence of the lack of changes in GSL should be an indication of supervision necessity [14, 20, 29–33].

The results show that the way the improvement was obtained, at least in therapies analysed in this research, it consisted mostly of GSL escalations interlaced by decreases and short periods of stagnations (plateaus). Thus it seems that no characteristics of neurotic symptom dynamics may serve as a certain premise to acknowledge treatment as purposeless. It should be repeated after Z. Martinovich [34] (on a basis of single case analyses) – not to precipitately classify the process of therapy as auguring its unfavourable termination. Also obtaining considerable reduction of GSL cannot be the only premise of decision for treatment termination.

### Conclusions

1. Changes of global neurotic symptom level (indicated by fluctuations of GSL measured in succeeding weeks of therapy) were the most apparent in patients who completed therapy as “symptom cured and significantly improved”, the least in those who obtained no improvement.
2. In the group of patients with best treatment outcome, periods of stagnancy in symptom fluctuations (plateaus) were the rarest.
3. Decrease of GSL – during therapy – to values below 200 points (women) or 165 points (men) may not serve as a guarantee that in the succeeding weeks of treatment a significant increase of symptoms will not occur. This is why the decision about treatment termination should not rely only on a decrease of GSL to the level typical for the untreated population and even to values twice lower.
4. Neurotic symptom dynamics in the course of psychotherapy is only one of the phenomena contributing to the final treatment result and prediction of the outcome based solely on the basis of its observation is not possible.

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